APPENDIX 1

INTERCONNECTION REQUEST

The undersigned Interconnection Customer submits this request to interconnect its Large Generating Facility to the Administered Transmission System under Schedule 22 - Large Generator Interconnection Procedures ("LGIP") of the ISO New England Inc. Open Access Transmission Tariff (the "Tariff"). Capitalized terms have the meanings specified in the Tariff.

PROJECT INFORMATION

Proposed Project Name:_____

1. This Interconnection Request is for (check one):

_____ **A proposed new Large Generating Facility**

_____ **An increase in the generating capacity or a modification that has the potential to be a Material Modification of an existing Generating Facility**

_____ **Commencement of participation in the wholesale markets by an existing Generating Facility**

_____ **A change from Network Resource Interconnection Service to Capacity Network Resource Interconnection Service**

2. The types of Interconnection Service requested:

_____ **Network Resource Interconnection Service (energy capability only)**

_____ **Capacity Network Resource Interconnection Service (energy capability and capacity capability)**

If Capacity Network Resource Interconnection Service, does Interconnection Customer request Long Lead Facility treatment? Check: ____Yes or ___ No

If yes, provide, together with this Interconnection Request, the Long Lead Facility deposit and other required information as specified in Section 3.2.3 of the LGIP, including (if the Large Generating Facility will be less than 100 MW) a justification for Long Lead Facility treatment.

3. **This Interconnection Customer requests (check one, selection is not required as part of the initial Interconnection Request):**

   _____ An Interconnection Feasibility Study

   _____ An Interconnection System Impact Study

   (The Interconnection Customer shall select either option and may revise any earlier selection up to within five (5) Business Days following the Scoping Meeting.)

4. **The Interconnection Customer shall provide the following information:**

Address or Location of the Facility (including Town/City, County and State):

_____

_____

_____

Approximate location of the proposed Point of Interconnection:

_____

Type of Generating Facility to be Constructed:_____

Will the Generating Facility include electric storage capacity? Yes____No___

If yes, describe the electric storage device and specifications:

_____

_____

Primary frequency response operating range for electric storage resources:

_____

Generating Facility Fuel Type:

_____

Generating Facility Capacity (MW):

Temperatures[1]	**Maximum Gross MW Electrical Output[2]**	**Maximum Net MW Electrical Output[3]**	**Net MW Capability at the Point of Interconnection[4]**
At or above 90 degrees F			
At or above 50 degrees F			
At or above 20 degrees F			
At or above 0 degrees F			

Requested capacity (in MW) of Interconnection Service (if lower than the Generating Facility Capacity):

Temperatures[1]	**Requested Gross MW Electrical Output**[2]	**Requested Net MW Electrical Output**[3]	**Requested Net MW Capability at the Point of Interconnection**[4]
At or above 90 degrees F			
At or above 50 degrees F			
At or above 20 degrees F			
At or above 0 degrees F			

Notes:

[1] In each row, insert all values corresponding to the given temperature, or a temperature greater than the given temperature, at which aggregate maximum gross output of the Generating Facility would be the highest. For example, if the aggregate maximum gross Generating Facility output occurs at 12 degrees F, all values in the "At or above 0 degrees F" row shall correspond to the 12 degrees F operating condition.

[2] Measured at the terminal(s) or inverter/converter terminal(s), as applicable, for each generating unit comprising the Generating Facility.

[3] Measured at the terminal(s) or inverter/converter terminal(s), as applicable, for each generating unit comprising the Generating Facility less any station service at each generating unit's terminal(s) or inverter/converter terminal(s), as applicable.

[4] Measured at the Interconnection Customer's proposed Point of Interconnection. The values correspond to the requested levels of Interconnection Service pursuant to Section 3.1 of the LGIP. The values account for any station service, losses incurred in Interconnection Facilities, station or generator step up transformers, and any other auxiliary systems. After the Interconnection Request is deemed valid, any increases to these values shall be subject to a new, separate Interconnection Request.

General description of the equipment configuration, including any proposed control technologies to restrict the Large Generating Facility's output to the requested Interconnection Service levels, if applicable (# of units and GSUs):

_____

_____

Requested Commercial Operations Date:

_____

Requested Initial Synchronization Date:

_____

Requested In-Service Date:

_____

Evidence of Site Control (check one):

_____ If for Capacity Network Resource Interconnection Service, Site Control is provided herewith, as required.

_____ If for Network Resource Interconnection Service: (Check one)

___ Is provided herewith

___ In lieu of evidence of Site Control, a $10,000 deposit is provided (refundable within the cure period as described in Section 3.4.3 of the LGIP).

_____ Site Control is not provided because the proposed modification is to the Interconnection Customer's existing Large Generating Facility and, by checking this option, the Interconnection Customer certifies that it has Site Control and that the proposed modification does not require additional real property.

The technical data specified within the applicable attachment to this form (check one):

_____ Is included with the submittal of this Interconnection Request form

_____ Will be provided on or before the execution and return of the Feasibility Study Agreement (Attachment A (and Attachment A-1, if applicable) or Attachment B, depending on the scope of the study) or the System Impact Study Agreement (Attachment A (and Attachment A-1, if applicable)), as applicable

The ISO will post the Project Information on the ISO web site under "New Interconnections" and OASIS.

CUSTOMER INFORMATION

Company Name:_____

ISO Customer ID# (If available):_____

(Interconnection Customer)

Company Address: **PO Box No.:** _____

Street Address: _____

City, State ZIP: _____

Company Representative: **Name:** _____

Title: _____

Company Representative's Company and Address (if different from above):

Company Name: _____

PO Box No.: _____

Street Address: _____

City, State ZIP: _____

Phone: _____ **FAX:** _____ **email:** _____

This Interconnection Request is submitted by:

Authorized Signature: _____

Name (type or print): _____

Title: _____

Date:_____

In order for an Interconnection Request to be considered a valid request, it must:

(a) Be accompanied by a deposit of $50,000.00 that is provided electronically and which may be refundable in accordance with Section 3.4.1 of the LGIP;

(b) For Capacity Network Resource Interconnection Service, include documentation demonstrating Site Control. If for Network Resource Interconnection Service, demonstrate Site Control or post an additional deposit of $10,000.00. If the Interconnection Customer with an Interconnection Request for Network Resource Interconnection Service demonstrates Site Control within the cure period specified in Section 3.4.1 of the LGIP, the additional deposit of $10,000.00 shall be refundable (An Interconnection Customer does not need to demonstrate Site Control for an Interconnection Request for a modification to its existing Large Generating Facility where the Interconnection Customer has certified that it has Site Control and that the proposed modification does not require additional real property);

(c) Include a detailed map, such as a map of the quality produced by the U.S. Geological Survey, which clearly indicates the site of the new facility and pertinent surrounding structures; and

(d) Include all information required on the Interconnection Request form and attachments thereto; and

(e) Include the deposit and all information required for Long Lead Facility treatment, if such treatment is requested in accordance with Section 3.2.3 of the LGIP.

The Interconnection Request must be submitted to the System Operator via the Interconnection Request Tracking Tool or IRTT, a web-based application for submitting, tracking and viewing Interconnection Requests available on the ISO New England website.

The technical data required below must be submitted no later than the date of execution of the System Impact Study Agreement pursuant to Section 7.2 of the LGIP.

LARGE GENERATING FACILITY DATA

UNIT RATINGS

Kva	°F	Voltage
Power Factor		
Speed (RPM)		Connection (e.g. Wye)
Short Circuit Ratio		Frequency, Hertz
Stator Amperes at Rated Kva		Field Volts
Max Turbine MW	°F	

Primary frequency response operating range for electric storage resources:

Minimum State of Charge:

Maximum State of Charge:

GREATEST UNIT RATING AT AMBIENT TEMPERATURE OF 90 º OR ABOVE

Gross Unit Rating (MW)	Gross Lagging (MVAR)
Net Unit Rating (MW)	Gross Leading (MVAR)
Station Service (MW)	Station Service (MVAR)

Temperature (ºF)

GREATEST UNIT RATING AT AMBIENT TEMPERATURE OF 50º OR ABOVE

Gross Unit Rating (MW)	Gross Lagging (MVAR)
Net Unit Rating (MW)	Gross Leading (MVAR)
Station Service (MW)	Station Service (MVAR)
Temperature (ºF)	

GREATEST UNIT RATING AT AMBIENT TEMPERATURE OF 20º OR ABOVE

Gross Unit Rating (MW)	Gross Lagging (MVAR)
Net Unit Rating (MW)	Gross Leading (MVAR)
Station Service (MW)	Station Service (MVAR)
Temperature (º F)	

GREATEST UNIT RATING AT AMBIENT TEMPERATURE OF 0º OR ABOVE

Gross Unit Rating (MW)	Gross Lagging (MVAR)
Net Unit Rating (MW)	Gross Leading (MVAR)
Station Service (MW)	Station Service (MVAR)
Temperature (ºF)	

COMBINED TURBINE-GENERATOR-EXCITER INERTIA DATA

Inertia Constant, H	=	kW sec/kVA
Moment-of-Inertia, WR2	=	lb. ft.2

REACTANCE DATA (PER UNIT-RATED KVA)

	DIRECT AXIS	QUADRATURE AXIS
Synchronous – saturated	Xdv	Xqv
Synchronous – unsaturated	Xdi	Xqi
Transient – saturated	X'dv	X'qv
Transient – unsaturated	X'di	X'qi
Subtransient – saturated	X"dv	X"qv
Subtransient – unsaturated	X"di	X"qi
Negative Sequence – saturated	X2v	
Negative Sequence – unsaturated	X2i	

FIELD TIME CONSTANT DATA (SEC)

Zero Sequence – saturated	X0v	
Zero Sequence – unsaturated	X0i	
Leakage Reactance	Xlm	
Open Circuit	T'qo	T'do
Three-Phase Short Circuit Transient	T'd3	T'q
Line to Line Short Circuit Transient	T'd2	
Line to Neutral Short Circuit Transient	T'd1	
Short Circuit Subtransient	T"d	T"q
Open Circuit Subtransient	T"do	T"qo

ARMATURE TIME CONSTANT DATA (SEC)

Three Phase Short Circuit	Ta3
Line to Line Short Circuit	Ta2
Line to Neutral Short Circuit	Ta1

NOTE: If requested information is not applicable, indicate by marking "N/A."

MW CAPABILITY AND PLANT CONFIGURATION

LARGE GENERATING FACILITY DATA

ARMATURE WINDING RESISTANCE DATA (PER UNIT)

Positive	R1		
Negative	R2		
Zero	R0		
Rotor Short Time Thermal Capacity I^2t	=		
Field Current at Rated kVA, Armature Voltage and PF	=	amps	
Field Current at Rated kVA and Armature Voltage, 0 PF		amps	
Three Phase Armature Winding Capacitance	=	microfarad	
Field Winding Resistance	=	ohms	°C
Armature Winding Resistance (Per Phase)	=	ohms	°C

CURVES

Provide Saturation, Vee, Reactive Capability, Capacity Temperature Correction curves. Designate normal and emergency Hydrogen Pressure operating range for multiple curves.

GENERATOR STEP-UP TRANSFORMER DATA RATINGS

Capacity Self-cooled/Maximum Nameplate

/ Kva

Voltage Ratio Generator side/System side/Tertiary

/ kV

Winding Connections Generator side/System Side/Tertiary (Delta or Wye)

/

Fixed Taps Available

Present Tap Setting

IMPEDANCE

Positive	Z1 (on self-cooled kVA rating)	%	X/R
Zero	Z0 (on self-cooled kVA rating)	%	X/R

EXCITATION SYSTEM DATA

Identify appropriate IEEE model block diagram of excitation system and power system stabilizer ("PSS") for computer representation in power system stability simulations and the corresponding excitation system and PSS constants for use in the model.

GOVERNOR SYSTEM DATA

Identify appropriate IEEE model block diagram of governor system for computer representation in power system stability simulations and the corresponding governor system constants for use in the model.

WIND AND INVERTER-BASED GENERATORS

A completed Attachment A-1 Supplementary Wind and Inverter-Based Generating Facility Form to this Attachment A, must be supplied for all Interconnection Requests for wind and inverter-based Generating Facilities.

MODEL REQUIREMENTS

For all Generating Facility types: A completed, fully functioning, public (*i.e.*, non-proprietary, non-confidential) Siemens PTI's ("PSSE") power flow model or other compatible formats, such as IEEE and General Electric Company Power Systems Load Flow ("PSLF") data sheet , must be supplied with this Attachment A. If additional public data sheets are more appropriate to the proposed device then they shall be provided and discussed at the Scoping Meeting. For all Interconnection Studies commencing after January 1, 2017, all power flow models must be standard library models in PSS/E or applicable applications. After January 1, 2017, user-models will not be accepted.

A PSCAD model for all wind and inverter-based Generating Facilities must be supplied with this Attachment A. If a PSCAD model is deemed required for other Generating Facility types at the Scoping Meeting, such PSCAD model must be provided to the System Operator within ninety (90) Calendar Days of the executed Interconnection System Impact Study Agreement. A benchmarking analysis, consistent with the requirements in the ISO New England Planning Procedures, confirming acceptable performance of the PSS/E model in comparison to the PSCAD model, shall be provided at the time PSCAD model is submitted.

INDUCTION GENERATORS:

(*) Field Volts:

(*) Field Amperes:

(*) Motoring Power (kW):

(*) Neutral Grounding Resistor (If Applicable):

(*) I_2^2t or K (Heating Time Constant):

(*) Rotor Resistance:

(*) Stator Resistance:

(*) Stator Reactance:

(*) Rotor Reactance:

(*) Magnetizing Reactance:

(*) Short Circuit Reactance:

(*) Exciting Current:

(*) Temperature Rise:

(*) Frame Size:

(*) Design Letter:

(*) Reactive Power Required In Vars (No Load):

(*) Reactive Power Required In Vars (Full Load):

(*) Total Rotating Inertia, H: Per Unit on KVA Base

Note: Please consult System Operator prior to submitting the Interconnection Request to determine if the information designated by (*) is required.

Applicant Signature

I hereby certify that, to the best of my knowledge, all the information provided in this Attachment A to the Interconnection Request is true and accurate.

For Interconnection Customer:_____Date:_____

SUPPLEMENTARY WIND AND INVERTER-BASED GENERATING FACILITY DATA FORM

1. Attach a Geographic Map Demonstrating the Project Layout and its Interconnection to the Power Grid. *(Specify the name of the attachment here)*

2. Attach a Bus-Breaker Based One-line Diagram (The diagram should include each of the individual unit generators, generator number, rating and terminal voltage.) *(Specify the name of the attachment here)*

2.1 Collection system detail impedance sheet

If a collector system is used, attach a collector system data sheet in accordance with the one-line diagram attached above. The data sheet should include: the type, length Z_0, Z_1 and Xc/B of each circuit (feeder and collector string).

Specify the name of the attachment here: _____

2.2 Collection system aggregate (equivalent) model data sheet

Attach an aggregate (equivalent) collection system data sheet. The data table should include: the type, length, Z_0, Z_1 and Xc/B of the equivalent circuits (feeders and collector strings).

Specify the name of the attachment here: _____

3. Summary of the Unit Models in the wind or inverter-based generating facility *(List all different unit models in the facility)*

Manufacturer Model	Type of this WTG* (if applicable)	Generator Unit Numbers in the field	Number(s) of these Units	Maximum Output of this Unit (MW)	Total MW

* Type 1 – Cage rotor induction generators
Type 2 – Induction generators with variable rotor resistance
Type 3 – Doubly-fed asynchronous generators with rotor-side converter
Type 4 – Full-power converter interface

Repeat the following sections from 4 to 12 for each different unit model.

4. Unit Detail Information

Unit Manufacturer Model	
Terminal Voltage	
Rating of Each Unit (MVA)	
Maximum Gross Electrical Output (MW)	
Minimum Gross Electrical Output(MW)	
Lagging Reactive Power Limit at Rated Real Power Output (MVAR)	
Leading Reactive Power Limit at Rated Real Power Output (MVAR)	
Lagging Reactive Power Limit at Zero Real Power Output (MVAR)	
Leading Reactive Power Limit at Zero Real Power Output (MVAR)	
Station Service Load(MW, MVAR)	
Minimum short circuit ratio(SCR) requirement by manufacturer	
On which bus the minimum SCR is required by manufacturer	
What voltage level the minimum SCR is required by manufacturer	
Positive sequence Xsource	
Zero sequence Xsource	

5. Unit GSU – _____

Nameplate rating(MVA)	
Total number of the GSUs	
Voltages, generator side/system side	
Winding connections, low voltage/high voltage	
Available tap positions on high voltage side	
Available tap positions on low voltage side	
Will the GSU operate as an LTC?	
Desired voltage control range if LTC	
Tap adjustment time (Tap switching delay + switching time) if LTC	
Desired tap position if applicable	
Impedance, Z1, X/R ratio	
Impedance, Z0, X/R ratio	

6. Low Voltage Ride Through(LVRT) – _____*(Specify the Manufacturer Model of this Unit)*

Does each Unit have LVRT capability?

Yes__ No__

If yes, please provide:

6.1 Unit LVRT mode activation and release condition:

When operating at maximum real power, what is the Unit terminal voltage for LVRT mode activation? _____

When operating at maximum real power, what is the Unit terminal voltage for releasing LVRT mode after it is activated? _____

If there is different LVRT activation and release logic, please state here _____

6.2 A wind or other inverter-based generating facility technical manual from the manufacturer including description of LVRT functionality:

Attach the file and specify the name of the attachment here:

_____

6.3 Does the wind or other inverter-based generating facility technical manual attached above include a reactive power capability curve?

Yes__ No__

If no, attach the file and specify the name of the attachment here:

_____

7. Low Voltage Protection (considering LVRT functionality)

(Specify the Manufacturer Model of this Unit)

Low Voltage Setting (pu)	Relay Pickup Time (Seconds)

*Add more rows in the table as needed

8. High Voltage Protection - _____(Specify the Manufacturer Model of this Unit)

High Voltage Setting (pu)	Relay Pickup Time (Seconds)

*Add more rows in the table as needed

9. Low Frequency Protection - _____(Specify the Manufacturer Model of this Unit)

Low Frequency Setting (Hz)	Relay Pickup Time (Seconds)

*Add more rows in the table as needed

10. High Frequency Protection - _____(Specify the Manufacturer Model of this Unit

High Frequency Setting (Hz)	Relay Pickup Time (Seconds)

*Add more rows in the table as needed

Please make sure the settings in sections 7 through 10 comply with NERC and NPCC standards for generator protection relays.

11. Unit Reactive Power Control - ____ (Specify the Manufacturer Model of this Unit)

11.1 What are the options for the Unit reactive power control (check all available)?

____Control the voltage at the Unit terminal
____Control constant power factor at the Unit terminal
____Control constant power factor at the low side of the station main transformer
____Control constant power factor at the high side of the station main transformer
____Control voltage at the low side of the station main transformer
____Control voltage at the high side of the station main transformer
____Other options. Please describe if select others_____

11.2 In all the control options selected above, please list the options in which the Unit is able to control its terminal voltage to prevent low/high voltage tripping.

_____

11.3 What is the desired control mode from the selected options above? Specify the control plan in this mode. For example: control voltage at which bus to what schedule.

_____

12. Wind or inverter-based generating facility Model

(All model files provided under this section 12 should be compatible with Siemens PTI's PSS/E version currently in use at ISO New England)

12.1 Power flow model

12.1.1 A *. RAW file including **aggregated/equivalent** wind or inverter-based generating facility power flow model with appropriate parameters and settings.
Attach the *.RAW file and specify the name of the attachment here:

_____

12.1.2 A *. RAW file including **detailed** wind or inverter-based generating facility power flow model with appropriate parameters and settings. *(Optional)*
Attach the *.RAW file and specify the name of the attachment here:

_____

12.2 Dynamic simulation model

(Please note that the dynamic model must match the aggregated/equivalent power flow model provided above. Attach the following information for each of the models.)

12.2.1 Wind or inverter-based generating facility Model _____ (Please Specify the Manufacturer Model)

12.2.2 A compiled PSS/E dynamic model for the turbines (a *.LIB or *.OBJ file)
Attach the *.LIB or *.OBJ file and specify the name of the attachment here:

_____

12.2.3 A dynamic data file with appropriate parameters and settings for the turbines (typically a *.DYR file)

Attach the *.DYR file and specify the name of the attachment here:

_____

12.2.4 PSS/E wind or inverter-based generating facility model user manual for the WTG

Attach and specify the name of the attachment here:

_____

Repeat the above sections from 6 to 12 for each different wind or inverter-based generating facility model.

13. Power Plant Controller

Will the wind or inverter-based generating facility be equipped with power plant controller, which has the ability to centrally control the output of the units? Yes__ No__

If yes, please provide:

13.1 Manufacturer model of the power plant controller

_____

13.2 What are the reactive power control strategy options of the power plant controller?

13.3 Which of the control option stated above is being used in current operation?

_____

13.4 Is the power plant controller able to control the unit terminal voltages to prevent low/high voltage tripping?

Yes__ No__

Please provide the park controller technical manual from the manufacturer

Attach the file and specify the name of the attachment here:

_____

14. Station Transformer

Transformer Name	
Nameplate ratings (MVA)	
Total number of the main transformer(s)	
Voltage, High/Low/Tertiary (kV)	
Winding connections, High/Low Tertiary	
Available tap positions on high voltage side	
Available tap positions on low voltage side	
Will the transformer operate as a LTC?	
Desired voltage control range if LTC	

Tap adjustment time (Tap switching delay + switching time) if LTC		
Desired tap position if applicable		
Tap adjustment time (Tap switching delay + switching time)		
Impedance Z_1, X/R ratio	Z_{1H-L}	X/R
	Z_{1H-T}	X/R
	Z_{1T-L}	X/R
Impedance Z_0, X/R ratio	Z_{0H-L}	X/R
	Z_{0H-T}	X/R
	Z_{0T-L}	X/R

15. Dynamic Simulation Model for the Power Plant Controller(s) (if applicable)

(All model files provided under this section 15 should be compatible with Siemens PTI's PSS/E version currently in use at ISO New England)

15.1 A compiled PSS/E dynamic model for the power plant controller(s) (a *.LIB or *.OBJ file)

Attach the *.LIB or *.OBJ file and specify the name of the attachment here:

_____

15.2 A dynamic data file with appropriate parameters and settings for the power plant controller(s) (typically a *.DYR file).

Please set the parameters in accordance with the currently used control mode.
Attach the *.DYR file and specify the name of the attachment here:

_____

15.3 PSS/E model user manual for the power plant controller(s)

Attach the manual and specify the name of the attachment or specify the name of the attachment here:_____

16. Capacitors and Reactors

Please provide necessary modeling data for all the capacitors and reactors belong to the facility, including: size, basic electrical parameters, connecting bus, switched or fixed, etc.

17. Dynamic Device(s)

(All model files provided under this section 17 should be compatible with Siemens PTI's PSS/E version currently in use at ISO New England)

17.1 Provide necessary modeling data file for all the dynamic devices belong to the facility.

Attach the *.LIB or *.OBJ file and specify the name of the attachment here:

_____

17.2 A dynamic data file containing the parameters for the units (typically a *.DYR file).

Set the parameters in accordance with the desired control mode.
Attach the *.DYR file and specify the name of the attachment here:

_____

18. Collection System/Transformer Tap-Setting Design

Attach a collection system/transformer tap-setting design calculations, consistent with the requirements in the ISO New England Planning Procedures, that identify the calculations to support the proposed tap settings for the unit step-up transformers and the station step-up transformers.

Attached the design document and specify the name of the attachment here:

_____

19. Additional Information

Are there any special features available to be implemented to the wind or inverter-based generating facility? Such as weak grid interconnection solutions, etc.
Specify the available features here:

_____

Insert the technical manual for each of the features listed above as objects (display as icons) or specify the name of the attachment here:

_____

20. Provide PSCAD Model and Documentation for the wind or inverter-based generating facility, the Power Plant Controller(s) and Other Dynamic Devices for the wind or inverter-based generating facility.

ISO will determine how much PSCAD work is needed from the wind or inverter-based generating facility based on its interconnection system conditions.

Attachment A-2
To Attachment A of Appendix 1
Cluster System Impact Study
Application Form

CLUSTER SYSTEM IMPACT STUDY APPLICATION FORM

The undersigned Interconnection Customer submits this form to request the inclusion of the Interconnection Request for its Large Generating Facility in a Cluster Interconnection System Impact Study pursuant to Section 4.2.3.2.2 of this LGIP.

To be included in a Cluster Interconnection System Impact Study, the following must be submitted together with this form to the System Operator by the Cluster Entry Deadline:

1. Project Information:
    a. Project Name:_____
    b. Queue Position:
    c. Is the Interconnection Request contractually associated with an Interconnection Request for an Elective Transmission Upgrade? Yes ____ No ____
    If yes, identify Queue Position of the associated Interconnection Request and provide evidence of the contractual commitment. Queue Position No.: _____
2. Initial Cluster Participation Deposit as specified in Section 4.2.3.2.2

Applicant Signature

I hereby certify that, to the best of my knowledge, all the information provided in this form is true and accurate.

For Interconnection Customer:_____Date:_____

The technical data required below must be submitted no later than the date of execution of the Feasibility Study Agreement pursuant to Section 6.1 of the LGIP.

Complete all fields. If field is not applicable, state "N/A".

A. LARGE GENERATING FACILITY DATA

(Aggregated data for all units at the Generating Facility)

	0°F	50°F
1. Total gross Generating Facility rated real power output (MW)		
2. Total gross lagging reactive capability of generator(s) at rated output (MVAR)		
3. Total gross leading reactive capability of generator(s) at rated output (MVAR)		
4. Total station service load (MW)		
5. Total station service load (MVAR)		

B. INDIVIDUAL GENERATING UNIT DATA

(Repeat the relevant table for each distinct type of generating unit utilized at the facility)

(Greatest unit rating at ambient temperature of 50°F or above)

Synchronous Generators	
1. Generating unit manufacturer	
2. Generating unit model	
3. Number of generating units	
4. Generating unit gross rated real power output (MW)	
5. Generating unit gross lagging reactive capability at rated output (MVAR)	
6. Generating unit gross leading reactive capability at rated output (MVAR)	
7. Generator rated MVA	
8. Station service (MW)	
9. Station service (MVAR)	
10. Net generator output (MW)	
11. Net generator output (MVAR)	
12. Nominal terminal voltage (kV)	
13. Rated power factor (%)	
14. Direct axis, positive sequence, sub-transient reactance on generator base in per unit, X''_{dv} (Unsaturated)	
15. Positive sequence, generator AC resistance on generator base in per unit, R_a	

Wind Turbine Generators	
1. Wind turbine manufacturer	
2. Wind turbine model	
3. Number of wind turbines	
4. Wind turbine type (1/2/3/4)	
5. Wind turbine unit rated output (MW)	
6. Wind turbine unit gross lagging reactive capability at rated output and at nominal terminal voltage (MVAR)	
7. Wind turbine unit gross leading reactive capability at rated output and at nominal terminal voltage (MVAR)	
8. Wind turbine converter rated MVA (Type 3 & 4)	
9. Nominal terminal voltage (kV)	
10. Rated power factor (%)	
11. Direct axis, positive sequence, sub-transient reactance on generator base, X''_{dv} (Unsaturated) in per unit	
12. Positive sequence, generator AC resistance on generator base in per unit, R_a	

Non-Wind Inverter-Based Generators	
1. Inverter manufacturer	
2. Inverter model	
3. Number of inverters	
4. Inverter unit rated output (MW)	
5. Inverter unit gross lagging reactive capability at rated output and at nominal terminal voltage (MVAR)	
6. Inverter unit gross leading reactive capability at rated output and at nominal terminal voltage (MVAR)	
7. Inverter rated MVA	
8. Nominal terminal voltage (kV)	
9. Rated power factor (%)	
Additional Data for Battery Energy Storage System (BESS)	
10. Maximum charging power (MW)	
11. Will BESS be charged from the Administered Transmission System? (Yes/No)	

C. GENERATOR SHORT CIRCUIT DATA

(Repeat the relevant table for each distinct type of generating unit utilized at the facility)

Synchronous Generator(s)		
MVA base for data		
kV base for data		
	R (per unit)*	X (direct axis, saturated) (per unit)*
1. Subtransient		
2. Transient		
3. Synchronous		
4. Negative Sequence		
5. Zero Sequence		
6. Connection (delta, grounded WYE, ungrounded WYE, impedance grounded)		
7.a. Ground resistance if impedance grounded (per unit)		
7.b. Ground reactance if impedance grounded (per unit)		

* Provide impedance in per unit on the generator MVA base

Inverter-Based Resources (including Type 3 & 4 Wind Turbine)	
Full load current magnitude (Amps) per inverter	
Instantaneous controlled fault current magnitude (Amps) per inverter	

D. TRANSFORMER RATINGS DATA

(Repeat the table for each distinct type of station generator step-up transformer utilized at the facility)

Station generator step-up transformer (Station Transformer)			
Number of Station Transformer(s)			
	Self-cooled	Maximum nameplate	
Capacity (kVA)			
	Generator side	System side	Tertiary
Voltage ratio (kV)			
	Low voltage	High voltage	Tertiary voltage
Winding connections (Delta or Wye)			
	Tap settings		
Fixed taps available		Present tap setting	

(Repeat the table for each distinct type of generating unit step-up transformer utilized at the facility)

Generating unit step-up transformer (GSU) (Wind turbine and inverter-based Generating Facilities)			
Number of GSU(s)			
	Self-cooled	Maximum nameplate	
Capacity (kVA)			
	Generator side	System side	Tertiary
Voltage ratio (kV)			
	Low voltage	High voltage	Tertiary voltage
Winding Connections (Delta or Wye)			
	Tap settings		
Fixed taps available		Present tap setting	

E. TRANSFORMER IMPEDANCE DATA

(Repeat the table for each distinct type of GSU transformer and station transformer on self-cooled kVA rating)

2-Winding Transformer			
Data For (Check One)	GSU	Station Transformer	
MVA Base for Data			
	R (p.u.)	X (p.u.)	X/R
Positive Sequence			
Zero Sequence			

3-Winding Transformer				
Data For (Check One)	GSU	Station Transformer		
MVA Base for Data				
	R (p.u.)	X (p.u.)	X/R	
High Side-Low Side				Positive Sequence
High Side-Tertiary				
Low Side-Tertiary				
High Side-Low Side				Zero Sequence
High Side-Tertiary				
Low Side-Tertiary				

F. COLLECTOR SYSTEM EQUIVALENCE IMPEDANCE DATA FOR WIND/PHOTOVOLTAIC PLANTS

(Provide data below in per unit on 100 MVA and nominal line voltage (kV) base. Do not include Station Transformer impedance)

1. Nominal voltage (kV)		
2. Positive sequence resistance (R1) , reactance (X1)		
3. Zero sequence resistance (R0), reactance (X0)		
4. Total branch charging susceptance, B		

G. INTERCONNECTION FACILITIES TIE LINE DATA

(Provide data below in per unit on 100 MVA and nominal line voltage (kV) base)

(Only list data for lines that are to be added by the generation developer)

1. Nominal Voltage (kV)		
2. Line termination points (The proposed line will connect point 2.a with point 2.b)	2.a.	
	2.b.	
3. Positive sequence resistance (R1) , reactance (X1)		
4. Zero sequence resistance (R0), reactance (X0)		
5. Total branch charging susceptance, B		

In addition, provide the following data:

a) Reactive capability curve

b) For synchronous generator(s)

   i. A complete Siemens PTI ("PSSE") format steady state power flow model of the Generating Facility (including Interconnection Facilities tie-line, if applicable)

   ii. A short-circuit model of the Generating Facility (including Interconnection Facilities tie-line, if applicable) in ASPEN OneLiner (.OLR) format

c) For collector-based Generating Facilities

   i. A complete Siemens PTI ("PSSE") format steady state power flow single-machine equivalent model shall be used for each major feeder branch of the Generating Facility as described in Planning Procedure 5-6 (Interconnection Planning Procedure for Generation and Elective Transmission Upgrades)

   ii. A single-machine equivalent short-circuit model of the Generating Facility (including Interconnection Facilities tie-line, if applicable) in ASPEN OneLiner (.OLR) format

Applicant Signature

I hereby certify that, to the best of my knowledge, all the information provided in this Attachment B to the Interconnection Request is true and accurate.

For Interconnection Customer:_____Date:_____